tically everybody." These cells reflect the genetics of the person from whom the blood was obtained, Dr. Moore points out, and are thus "very, very valuable for studying patients with abnormal genetic backgrounds such as any of the children with metabolic disorders. You can also grow the cells from people with abnormal chromosome constitutions," such as those men with the XYY syndrome.

But the lymphocytes can't be used directly for treating transplant patients. The lymphocytes must be injected into horses, and the anti-lymphocyte globulins harvested from the horses' blood streams. These globulins are then used to keep the patient's lymphocytes in check, Dr. Moore says, so that they do not destroy the transplanted organ. Without the lymphocytes from the "factory," however, the whole process would be far more difficult.

AUTO EMISSIONS:

Ford has clean engine

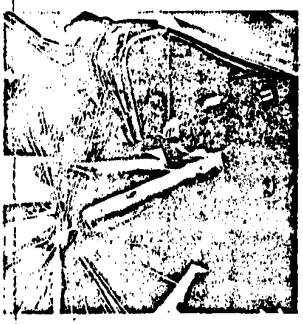
The Environmental Protection Agency has singled out a Ford Motor Co.-developed internal combustion engine as being potentially capable of meeting 1976 standards for vehicle emissions—including nitrogen oxides. Ford itself is considerably more modest. The engine has promise, the auto firm says, but it also has problems, especially problems of durability.

The engine—designed for the Army's ¼-ton trucks—is a four-cylinder, 72-h.p. piston engine with an 11:1 compression ratio. Combination of direct fuel injection (no carburetor), extended spark plug electrodes, and a specially shaped combustion chamber results in a stratified-charge combustion process—"programed combustion," Ford calls it—that enables the engine to run satisfactorily on 91- to 94-octane unleaded fuel despite its high compression ratio.

With exhaust gas recirculation (EGR), thermal reactor, and catalytic afterburner added, the engine had satisfactorily low emission levels for hydrocarbons and carbon monoxide, but NO_x levels were still well above 1976 requirements. Then Ford engineers improved the EGR system and redesigned the fuel metering system to maintain a near-ideal combustion mixture regardless of atmospheric conditions or engine r.p.m.'s. Ford's tests showed that these changes had reduced NO_x emissions to a level approximating the 1976 standard.

EPA is now running its own tests of the engine. If its findings confirm Ford's, the agency may well offer them as evidence that the 1976 standards are indeed attainable, despite auto makers' protests to the contrary.

Ford counters that getting satisfactory emission levels from hand-built, highly tuned engines running on a test stand is one thing, but getting the same results from production engines running 50,000 miles on the road is something else again. However, two Ford V-8 engines have been converted to "proco" operation and currently are undergoing tests.



Low-cost rocket torch

A rocket motor has been turned backwards to become an efficient cutting torch for steel and other metals—perhaps the first use of a rocket for other than propulsion—by United Technology Center, Sunnyvale, Calif. The small (17½ inches long) and lightweight (6½ pounds) torch has a flame temperature of about 5600° F. It uses a solid fuel—hollow polymethyl methacrylate rods—with a proprietary solid oxidizer, a modified chlorate candle. United Technology will market the torch for $25 to $30 each to police, fire departments, and industry for such uses as quick extrication of victims from auto wrecks (see photo). The torch is a spin-off from work on hybrid rocket motors using the same fuel and liquid nitric acid oxidizer.

PCB CONTAMINATION:

Task force investigation

An interdepartmental task force has been set up in the Federal Government to coordinate a government-wide investigation into contamination by polychlorinated biphenyls (PCB) of food and other products.

The action, according to the Food and Drug Administration, is aimed at ensuring effective coordination of government response to specific and preventable PCB contamination and at developing "a long-range strategy for coordinating scientific resources to better define the PCB problem and its possible implications for human health." FDA says that on the basis of current scientific knowledge, there is no imminent threat to the safety of food or to public health from PCB's.

The PCB task force, which will be coordinated through the Office of Science and Technology and the Council on Environmental Quality, includes representatives from the Environmental Protection Agency, FDA, National Institute of Environmental Health Sciences, and Agriculture Department. It was set up at a meeting on Sept. 1, called by FDA to share information gathered by FDA and USDA on PCB's. The agencies have been conducting follow-up investigations of "industrial incidents," which FDA says have resulted in low-level PCB adulteration of some food products. An FDA spokesman says that information from the industrial accidents coupled with information gleaned from other investigations "indicated to us that there might be a potential problem that would require more than FDA involvement." He adds that the first chore of the PCB task force will be to check segments of Government and industry to find out what's known about PCB's.

Monsanto, the only domestic producer of PCB's, says that the Government's task force approach to the PCB environmental issue is "most appropriate" and that "the company stands ready to continue its support of and cooperation with these agencies. At the same time," a company spokesman says, "we believe our three-year-old program to control uses and escape of PCB is correct and that it will supplement the agency's effort." He adds that the company's program to control usage includes selling PCB's only for use in closed systems.